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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,816	10/29/2003	Karl-Heinz Maus	024943-056	6775

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,816

Applicant(s)

MAUS ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4 IDS (See item 2)</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 10/29/03, 05/18/04, 05/17/05 and 07/21/05 were considered by the examiner.

Drawings

3. The drawings were received on 10/29/03. These drawings are acceptable.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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7. Claims 2 and 9 recite the limitation "the stack of plates" in lines 1-2 (claim 2) and line 1 (claim 9). There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

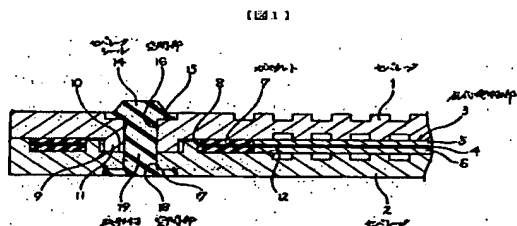
9. Claims 1-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese publication JP 2001-338673 (hereinafter the JP'673).

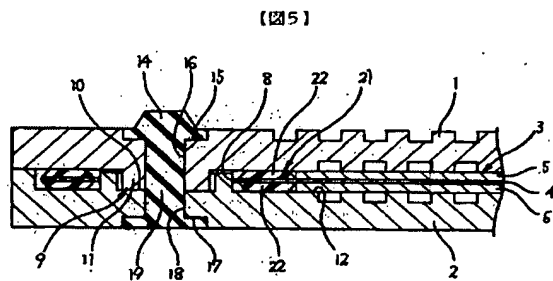
The present claims are directed to a fuel cell arrangement wherein the disclosed inventive concept comprises the specific seal element.

As to claims 1 and 6:

The JP'673 discloses two or more separators 1, 2 being unified in a stack fashion by injection molding of a molding material 19 which consists of a rubber, a liquid rubber, or a thermoplastic elastomer (*all of the are polymeric materials*) (ABSTRACT).

Figures 1 and 5 below illustrate the specific fuel cell arrangement or configuration including plates 1 and 2 and a molding material 19 injected onto the plates to seal them so as to form a joined structure.





As to claims 2-4, 9-11 and 14:

Molding material 19 (the seal element) is disposed on the main surfaces of the stack and the seal element encompasses end faces of the plates (See **Figures 1 and 5**). Plates 1 and 2 are placed immediately adjacent one another and there is an empty space therebetween (See **enlarged portion of Figure 1** below).



As to claim 5, 12 and 14-15:

As illustrated in **Figures 1 and 5** above, each plate 1, 2 has an opening or aperture and the seal element (reference numeral 19) extend therethrough (See also **enlarged portion of Figure 1** below). *In this instant, the cavity having the seal may be either the upper portion of plate 1, or the lower portion of plate 2, or the interface portion between plates 1 and 2.*

As to claim 7:

The JP'673 discloses using a molding material 19 which consists of a rubber, a liquid rubber, or a thermoplastic elastomer (*all of the are polymeric materials*) (ABSTRACT). *It is*

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noted that these polymeric materials exhibit adhesive properties (one of the polymeric material more adhesive than the other).

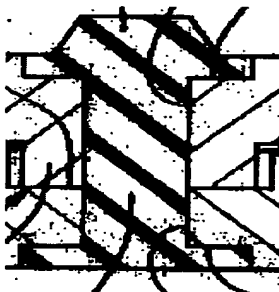
As to claims 8 and 13:

Enlarged portion of Figure 1 below depicts the interlocking configuration between the molding material 19 and the plates, as well as between the plates. *The space where the molding material 19 is specifically disposed corresponds to respective plates opening overlapping each other.*



As to claims 16-18:

Further enlarged portion of Figure 1 below shows a molding material 19 being progressively narrowed toward the upper end (tapered structure) and having flat surfaces at either side thereof.



As to claim 20:

The JP'673 discloses two or more separators 1, 2 being unified in a stack fashion by injection molding of a molding material 19 which consists of a rubber, a liquid rubber, or a

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thermoplastic elastomer (*all of the are polymeric materials*) (ABSTRACT). *Thus, the process of producing the module for the fuel cell arrangement is inherently disclosed by the JP'673.*

Consequently, the present claims are anticipated.

10. Claims 1-15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by the publication WO 02/059995 (referred to as the WO'995).

As to claims 1 and 6:

Figure 2 below of the WO'995 clearly illustrates a fuel cell arrangement including plates 30 (ABSTRACT/Figure 2) being bonded with a conductive adhesive onto the same plates (ABSTRACT/ Figure 2). Reference numeral 31 represents a space between the plates (page 7, lines 30-32/ page 11, line 11). Seal element is represented by feature 11 which is a thermoplastic material injected onto the plates (Page 10, lines 10 to page 11, line 5).

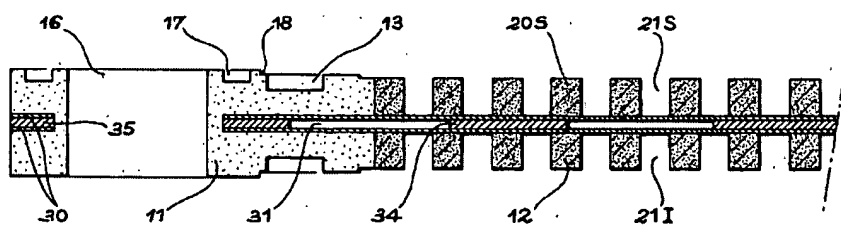


FIG. 2

As to claims 2-4, 9-11 and 14:

As illustrated in Figure 2 above, sealing material 11 is disposed on the main surfaces of the stack and the seal element encompasses end faces of the plates (See **Figure 2**). Plates 30 are placed immediately adjacent one another and there is an empty space 31 therebetween.

As to claim 7:

As to claims 8 and 13:

As to claim 20:

Figure 2 below of the WO'995 clearly illustrates a fuel cell arrangement including plates 30 (ABSTRACT/Figure 2) being bonded with a conductive adhesive onto the same plates (ABSTRACT/ Figure 2). Reference numeral 31 represents a space between the plates (page 7,

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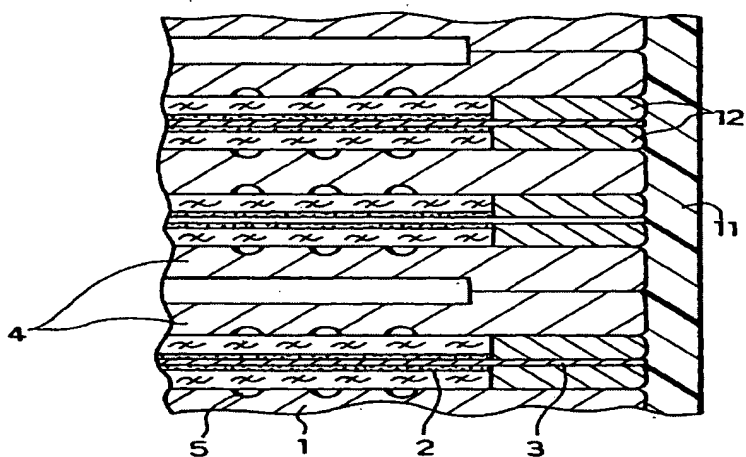
lines 30-32/ page 11, line 11). Seal element is represented by feature 11 which is a thermoplastic material injected onto the plates (Page 10, lines 10 to page 11, line 5). *Thus, the process of producing the module for the fuel cell arrangement is inherently disclosed by the WO'995.*

Therefore, the present claims are anticipated.

11. (*At least*) Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the publication EP 0951186 (referred to as the EP'086).

Figure 8 of the EP'086 illustrates a fuel cell arrangement (TITLE) including separator plates 4 (P.0121) having injected thereon a phenolic resin 11 to join the plates at a lateral side thereof (P0086).

FIG. 8



As a result, the present claims are anticipated.

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12. (*At least*) Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admission of prior art (herein called the AAPA) (*refer to applicant's specification at paragraph 0005*).

In paragraph 0005 of applicant's specification, the AAPA discloses a seal arrangement especially for bipolar plates with interposed ion exchange membrane units in fuel cells wherein seal elements of the polymer material are injected into the recesses of the bipolar plates and with the pertinent bipolar plate, form an integral unit (Applicants' specification at paragraph 0005).

Accordingly, the present claims are anticipated.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

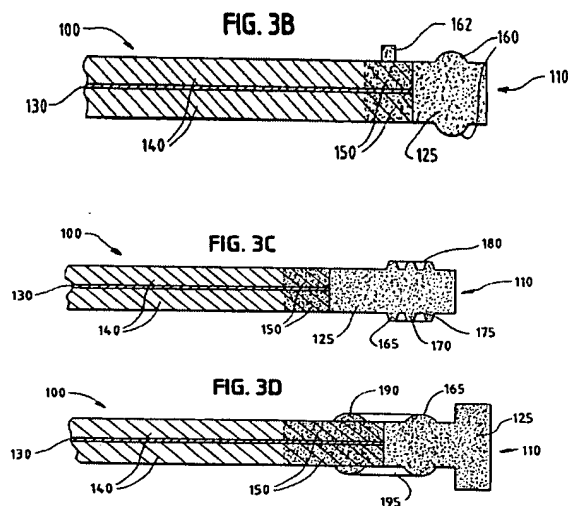
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over: a) Japanese publication JP 2001-338673 (hereinafter the JP'673); and/or b) the publication WO 02/059995 (referred to as the WO'995); and/or c) the publication EP 0951186 (referred to as the EP'086); and/or d) applicant's admission of prior art (herein called the AAPA) (*refer to applicant's specification at paragraph 0005*) as applied to claims 6 or 18 above, and further in view of the publication WO 99/04446 (herein called the WO'446).

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The JP'673 and/or the WO'995 and/or the EP'086 and/or the AAPA are applied, argued and incorporated herein for the reasons expressed above. However, none of the preceding references expressly disclose the specific seal having recesses.

The WO'446 shows in **Figures 3B-D** below seal elements comprising tapered structures and flat surfaces. Specifically, **Figure 3C** does show the flat surface being separated from the tapering surface by a recess.



In view of the above, it would have been obvious to a POSITA at the time the invention was made to use the specific seal having recesses of the WO'446 in the fuel cell arrangement of the JP'673 and/or the WO'995 and/or the EP'086 and/or the AAPA because the WO'446 discloses that seals having such a specific configuration provide compartmentalized seals that furnish improved protection against fluid leaks in a fuel cell assembly. Thus, it does provide enhanced leaking protection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond Alejandro
Primary Examiner
Art Unit 1745


**RAYMOND ALEJANDRO
PRIMARY EXAMINER**